

Electrical Specifications (continued)

| Parameter | Device | Symbol | Min | Typ | Max | Unit |
|--|---|--|-------------|--------------------------------------|----------------------|--|
| Output Voltage Set-point (with 0.5% tolerance for external resistor used to set output voltage) | All | $V_{O, set}$ | -1.5 | | +1.5 | % $V_{O, set}$ |
| Output Voltage (Over all operating input voltage, resistive load, and temperature conditions until end of life) | All | $V_{O, set}$ | -3.0 | — | +3.0 | % $V_{O, set}$ |
| Adjustment Range Selected by an external resistor | All | V_O | 0.6 | | 3.63 | Vdc |
| Output Regulation (for $V_O \geq 2.5Vdc$) Line ($V_{IN}=V_{IN, min}$ to $V_{IN, max}$) Load ($I_O=I_{O, min}$ to $I_{O, max}$) | All All | | | — | 0.4 | % $V_{O, set}$ % $V_{O, set}$ |
| Output Regulation (for $V_O < 2.5Vdc$) Line ($V_{IN}=V_{IN, min}$ to $V_{IN, max}$) Load ($I_O=I_{O, min}$ to $I_{O, max}$) Temperature ($T_{ref}=T_{A, min}$ to $T_{A, max}$) | All All All | | | — | 10 10 0.4 | mV mV % $V_{O, set}$ |
| Remote Sense Range | All | | | | 0.5 | V |
| Output Ripple and Noise on nominal output ($V_{IN}=V_{IN, nom}$ and $I_O=I_{O, min}$ to $I_{O, max}$ $C_o = 0.1\mu F // 10\mu F$ ceramic capacitors) Peak-to-Peak (5Hz to 20MHz bandwidth) RMS (5Hz to 20MHz bandwidth) | All All | | — — | 20 10 | 35 15 | mV _{pk-pk} mV _{rms} |
| External Capacitance ¹ Without the Tunable Loop™ ESR $\geq 1\text{ m}\Omega$ With the Tunable Loop™ ESR $\geq 0.15\text{ m}\Omega$ ESR $\geq 10\text{ m}\Omega$ | All All All | $C_{O, max}$ $C_{O, max}$ $C_{O, max}$ | 0 0 0 | — — — | 200 1000 10000 | μF μF μF |
| Output Current | All | I_O | 0 | | 20 | Adc |
| Output Current Limit Inception (Hiccup Mode) | All | $I_{O, lim}$ | | 200 | | % $I_{O, max}$ |
| Output Short-Circuit Current ($V_O \leq 250mV$) (Hiccup Mode) | All | $I_{O, s/c}$ | | 30 | | % $I_{O, max}$ |
| Efficiency $V_{IN} = 3.3Vdc$, $T_A = 25^\circ C$ $I_O = I_{O, max}$, $V_O = V_{O, set}$ $V_{in} = 5Vdc$ | $V_{O, set} = 0.6Vdc$ $V_{O, set} = 1.2Vdc$ $V_{O, set} = 1.8Vdc$ $V_{O, set} = 2.5Vdc$ $V_{O, set} = 3.3Vdc$ | η η η η η | | 70.0 81.9 87.3 90.8 92.9 | | % % % % % |
| Switching Frequency | All | f_{sw} | — | 600 | — | kHz |
| Dynamic Load Response ($dI_O/dt = 10A/\mu s$; $V_{IN} = 3.3V$; $V_O = 1.5V$, $T_A = 25^\circ C$) Load Change from $I_O = 0\%$ to 50% of $I_{O, max}$; $C_o = 0$ Peak Deviation Settling Time ($V_O < 10\%$ peak deviation) Load Change from $I_O = 50\%$ to 0% of $I_{O, max}$; $C_o = 0$ Peak Deviation Settling Time ($V_O < 10\%$ peak deviation) | All All All All | V_{pk} t_s V_{pk} t_s | | 330 30 420 30 | | mV μs mV μs |

¹ External capacitors may require using the new Tunable Loop™ feature to ensure that the module is stable as well as getting the best transient response. See the Tunable Loop™ section for details.

General Specifications

| Parameter | Min | Typ | Max | Unit |
|---|-----|-------------|-----|---------|
| Calculated MTBF ($I_o=0.8I_{o,max}$, $T_A=40^\circ\text{C}$) Telcordia Issue 2 Method 1 Case 3 | | 7,868,128 | | Hours |
| Weight | — | 6.03 (0.21) | — | g (oz.) |

Feature Specifications

Unless otherwise indicated, specifications apply over all operating input voltage, resistive load, and temperature conditions. See Feature Descriptions for additional information.

| Parameter | Device | Symbol | Min | Typ | Max | Unit |
|---|--------|--|-------------------|-------------|--------------------|----------------------|
| On/Off Signal Interface ($V_{IN}=V_{IN,min}$ to $V_{IN,max}$; open collector or equivalent, Signal referenced to GND) Device is with suffix "4" – Positive Logic (See Ordering Information) Logic High (Module ON) Input High Current Input High Voltage Logic Low (Module OFF) Input Low Current Input Low Voltage | All | I_{IH} V_{IH} | — $V_{IN}-0.8$ | — | 10 $V_{IN,max}$ | μA V |
| Device Code with no suffix – Negative Logic (See Ordering Information) (On/OFF pin is open collector/drain logic input with external pull-up resistor; signal referenced to GND) Logic High (Module OFF) Input High Current Input High Voltage Logic Low (Module ON) Input low Current Input Low Voltage | All | I_{IH} V_{IH} | — $V_{IN}-1.6$ | — | 2 $V_{IN,max}$ | mA Vdc |
| Logic Low (Module ON) Input low Current Input Low Voltage | All | I_{IL} V_{IL} | — -0.2 | — | 0.3 0.3 | mA V |
| Turn-On Delay and Rise Times ($V_{IN}=V_{IN,nom}$, $I_o=I_{o,max}$, V_o to within $\pm 1\%$ of steady state) Case 1: On/Off input is enabled and then input power is applied (delay from instant at which $V_{IN} = V_{IN,min}$ until $V_o = 10\%$ of $V_{o,set}$) Case 2: Input power is applied for at least one second and then the On/Off input is enabled (delay from instant at which Von/Off is enabled until $V_o = 10\%$ of $V_{o,set}$) Output voltage Rise time (time for V_o to rise from 10% of $V_{o,set}$ to 90% of $V_{o,set}$) | All | T_{delay} T_{delay} T_{rise} | — — — | 2 2 5 | — — — | msec msec msec |
| Output voltage overshoot ($T_A = 25^\circ\text{C}$ $V_{IN} = V_{IN,min}$ to $V_{IN,max}$, $I_o = I_{o,min}$ to $I_{o,max}$) With or without maximum external capacitance | | | | | 3.0 | % V_o |
| Over Temperature Protection (See Thermal Considerations section) | All | T_{ref} | | 144 | | $^\circ\text{C}$ |
| Sequencing Delay time Delay from $V_{IN,min}$ to application of voltage on SEQ pin | APTH | $T_{SEQ-delay}$ | 10 | | | msec |
| Tracking Accuracy (Power-Up: 2V/ms) (Power-Down: 2V/ms) | APTH | $V_{SEQ} - V_o$ | | | 100 | mV |
| ($V_{IN,min}$ to $V_{IN,max}$; $I_{o,min}$ to $I_{o,max}$ $V_{SEQ} < V_o$) | APTH | $V_{SEQ} - V_o$ | | | 100 | mV |